Doc. No. 78-4144-01

Installing Cisco AC and DC Power Supplies in Cisco 2500 Series Routers

Product Numbers: PWR-2500-AC=, PWR-2500-DC=

This document describes how to replace the AC or DC power supply in Cisco 2500 series routers. The AC and DC power supplies are spare parts items. The replacement of the power supply requires removing the existing power supply and installing the replacement power supply. This procedure does not apply to the Cisco 2517, 2518, or 2519 versions of the Cisco 2500 series routers.

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Warning This waning symbol means *danger.* You are in a situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with the electrical circuitry and familiar with standard practices for preventing accidents. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Only trained and qualified personnel should be allowed to install or replace this equipment. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

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Warning Read the installation instructions before you connect the system to its power source. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Required Tools and Equipment

You will need the following items:

- One screw
- Cisco 2500 series router
- AC or DC power supply
- Medium-size flat-blade screwdriver
- ESD-preventive wrist strap
- Antistatic bag

Removing the Cover

You must remove the chassis cover to access the internal power supply. When opening the chassis, refer to Parts A and B in Figure 1.

Warning Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Take the following steps to remove the chassis cover:

Step 1 Power OFF the router.

Step 2 Attach your ESD-preventive wrist strap.

Step 3 Disconnect all cables from the rear panel of the router.

Warning Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is OFF and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Step 4 Turn the unit upside down so that the top of the chassis is resting on a flat surface, and the front of the chassis is facing toward you. (See Figure 1, Part A.)

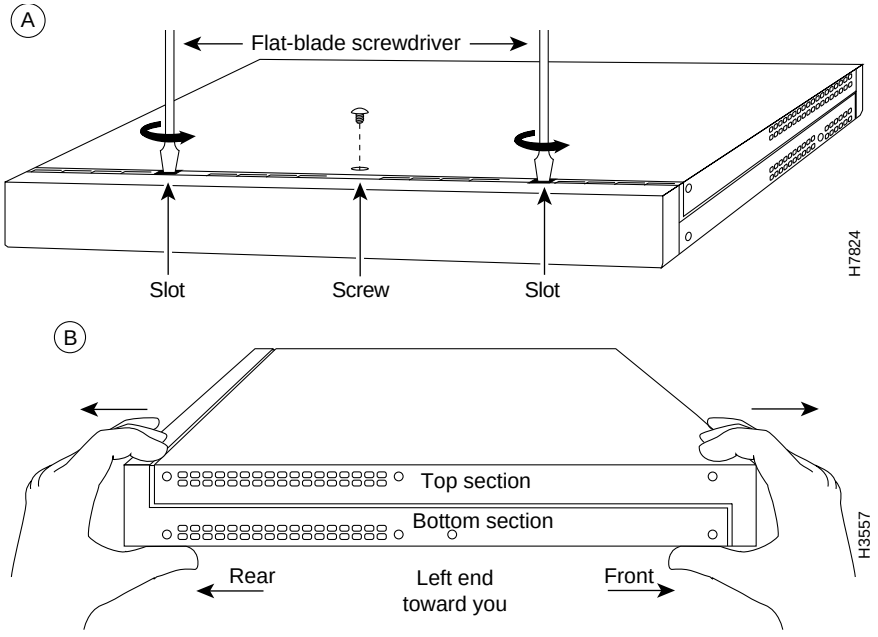
Step 5 Remove the single screw located on the bottom of the chassis (on the side closest to you). Note that the chassis is comprised of two sections: top and bottom.

Step 6 If required, insert a medium-size flat-blade screwdriver into the slots shown in Figure 1, Part A, and rotate the blade so that the top and bottom sections separate slightly.

Step 7 Holding the chassis with both hands, position it as shown in Figure 1, Part B.

Step 8 Pull the top section away from the bottom section. (See Figure 1, Part B.) The fit is very snug, so it may be necessary to pry the chassis sections apart at one end and then the other until they separate.

Figure 1 Chassis Cover Removal



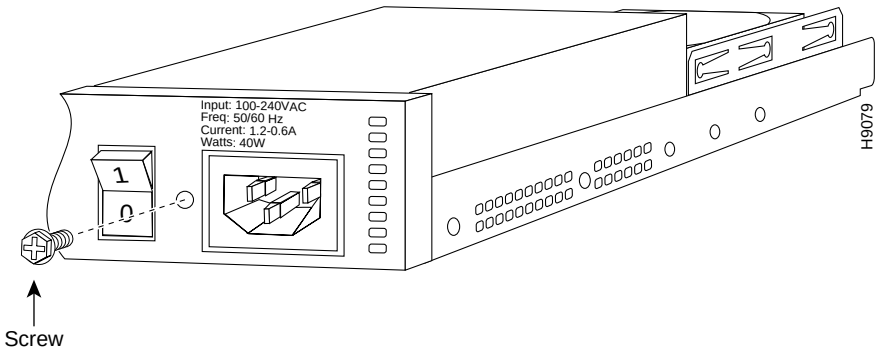
Removing AC and DC Power Supplies

This section describes how to remove an AC or DC power supply. Although an AC power supply is shown in the illustrations that follow, the procedure is the same for removing both AC and DC power supplies.

Take the following steps to remove a power supply:

Step 1 Remove the screw located between the power switch and power connector. (See Figure 2.) This screw secures the power supply to the chassis.

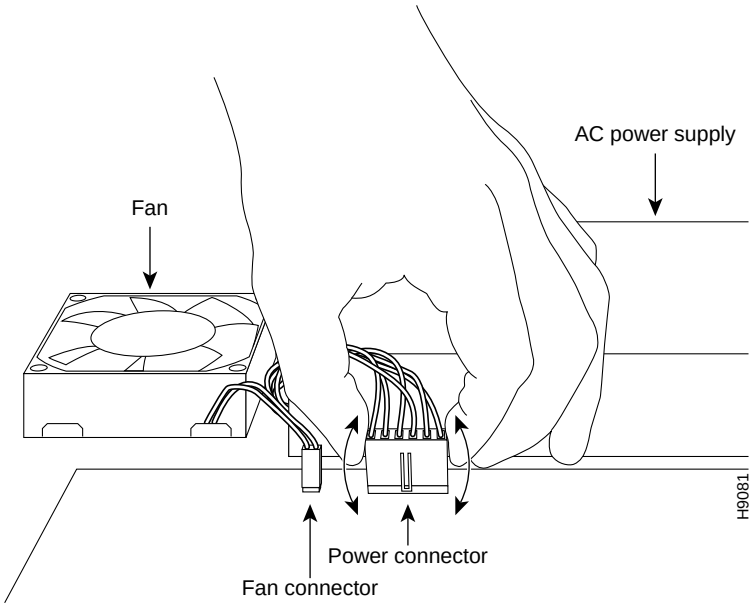
Figure 2 Removing the Screw



Step 2 Disconnect the power connector from the system board. (See Figure 3.) Grasp the sides of the power connector and pull upward while rocking the connector side to side.

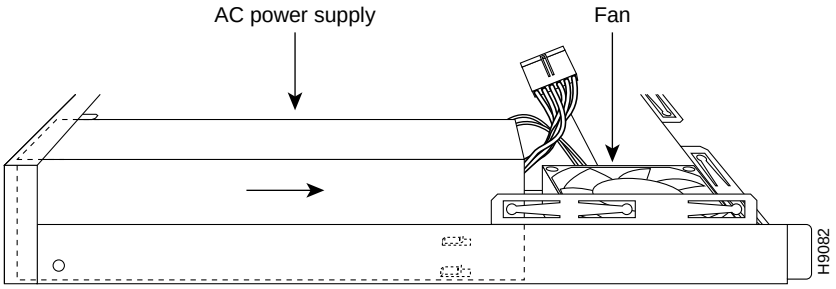
Caution Do not pull on the connector wires.

Figure 3 Disconnecting the Power Connector



Step 3 Push the loosened power supply backward and lift it out of the chassis. (See Figure 4.)

Figure 4 Removing the Power Supply



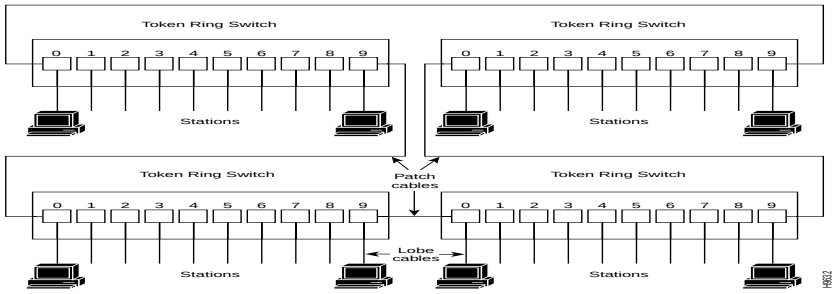
Step 4 Place the removed screw and power supply in an antistatic bag.

Installing AC and DC Power Supplies

This section describes how to install AC and DC power supplies. Although an AC power supply is shown in the illustrations that follow, the procedure is the same for installing both AC and DC power supplies.

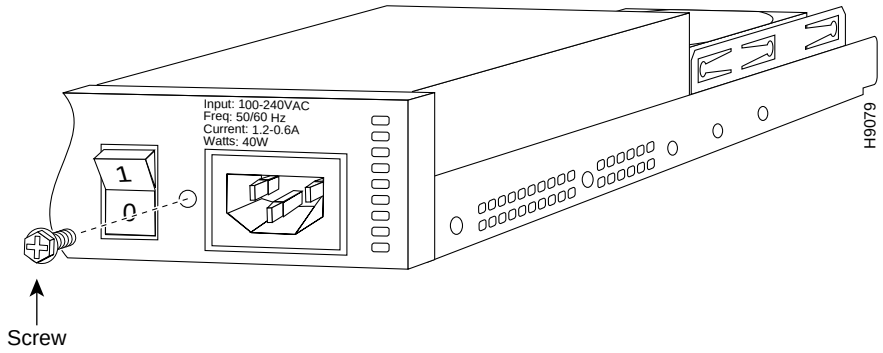
Step 1 Put the power supply into place and gently slide it toward the back of the chassis engaging the tabs on the bottom of the case with the slots in the bottom of the power supply. (See Figure 5.)

Figure 5 Inserting the Power Supply



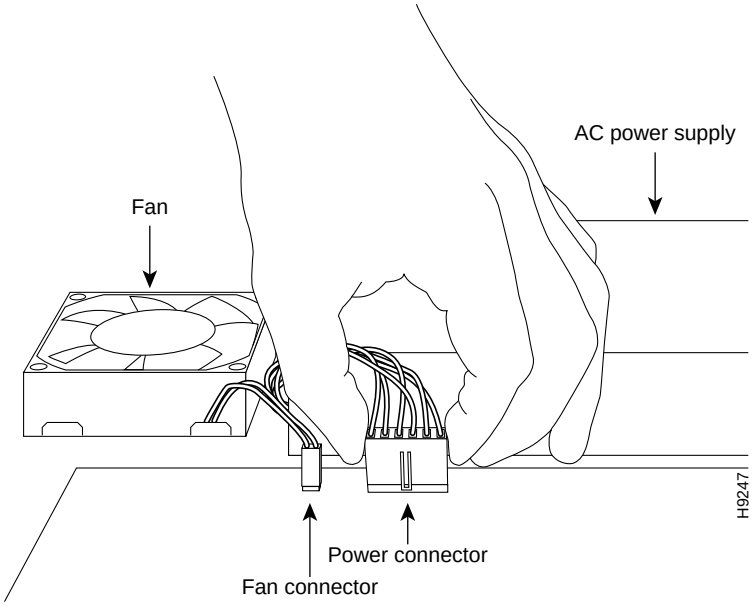
Step 2 Install the screw that came with the Cisco power supply into the screw hole between the power switch and power connector. (See Figure 6.)

Figure 6 Installing the Screw



Step 3 Connect the power connector from the system board. Grasp the sides of the power connector and gently push downward while rocking the connector side to side. (See Figure 7.)

Figure 7 Connecting the Power Connector



Replacing the Cover

Take the following steps to replace the cover:

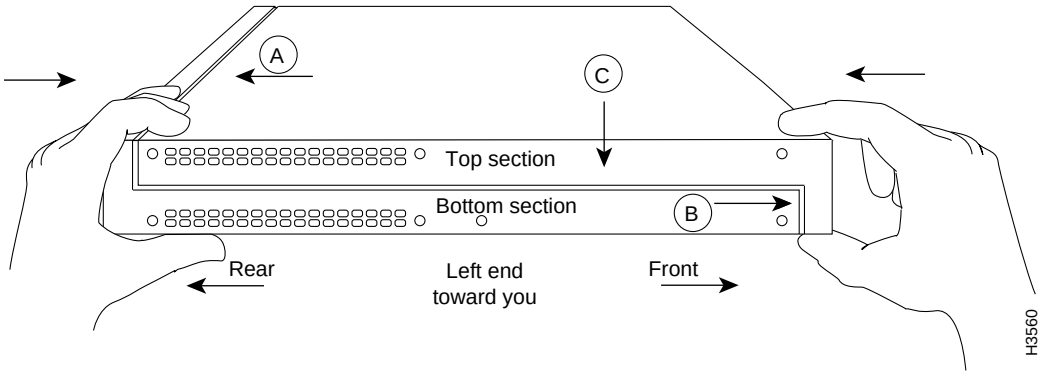
Step 1 Position the two chassis sections, as shown in Figure 8.

Step 2 Referring to Figure 8, press the two chassis sections together and ensure the following:

- The top section fits *into* the rear of the bottom section. (See A in Figure 8.)
- The bottom section fits *into* the front of the top section. (See B in Figure 8.)
- Each side of the top and bottom sections fits together. (See C in Figure 8.)

Caution To fit the two sections together, it may be necessary to work them together at one end and then the other, working back and forth; however, use care to prevent bending the chassis edges. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Figure 8 Replacing the Chassis Cover



Step 3 When the two sections fit together snugly, turn the chassis so that the bottom is facing up, with the front panel toward you.

Step 4 Replace the cover screw. (See Figure 8.)

Step 5 Remove the protective cover from the back of the power requirements label.

Step 6 Carefully place the label directly over the silk screened power requirements information on the rear panel of the system.

Step 7 Remove the protective cover from the back of the system designation label.

Step 8 Carefully place the label directly over the silk screened system designation information on the rear panel of the system.

Step 9 Reinstall the chassis on the wall, rack, desktop, or table.

Step 10 Replace all cables.

Step 11 Remove your ESD-preventive wrist strap.

Note Ensure that the System OK LED is not covered by the system designation label.

This completes the procedure for installing AC and DC power supplies. If you have questions or need assistance, see the section “Obtaining Service and Support.”

Connecting the DC Power Supply

This section describes the DC power supply specifications and wiring.

Warning This unit is intended for installation in restricted access areas. A restricted access area is where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location. (To see translated versions of the warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router.)

DC Power Specifications

The DC power supply is intended for use in DC operating environments. Table 1 lists the power supply specifications.

Table 1 DC Power Supply Specifications

Description	Design Specification
Power (input)	40W, –40 to –72 VDC
Wire gauge for power connections	14 AWG[1]

1. AWG = American Wire Gauge.

Wiring the DC Power Supply

Follow the directions in this section to wire the terminal block.

Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router.)

Note This product is intended for installation in restricted access areas and is approved for use with 14 AWG copper conductors only. The installation must comply with all applicable codes.

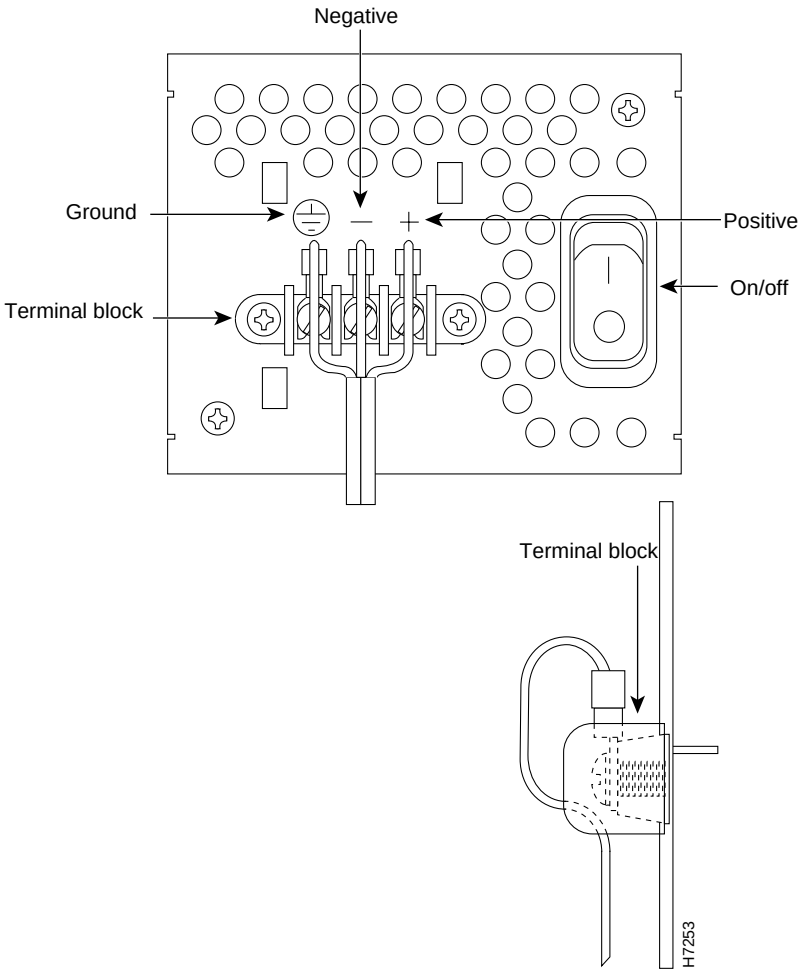
Take the following steps to wire the terminal block:

Step 1 Attach the appropriate lugs at the wire end of the power supply cord.

Step 2 Wire the DC power supply to the terminal block, as shown in Figure 9.

Warning The illustration shows the DC power supply terminal block. Wire the DC power supply using the appropriate lugs at the wiring end, as illustrated. The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router.)

Figure 9 DC Power Supply Connections



Warning When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router.)

Caution Do not overtorque the terminal block captive thumbscrew or terminal block contact screws. The recommended torque is 8.2 0.4 inch-lb

Warning After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router.

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors). (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

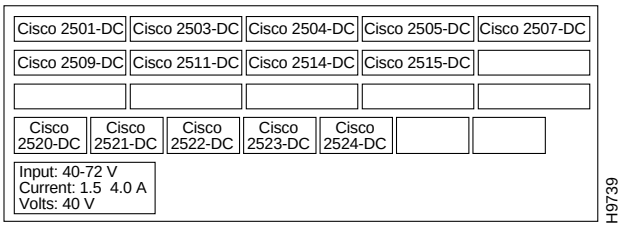
Installing Power Requirements and System Identifier Labels

Follow the directions in this section to place the Power Requirements and System Identifier labels on the rear panel of the Cisco 2500 series routers.

Note The steps in this section are only performed when the router is being converted from an AC power supply to a DC power supply.

Step 1 Remove the Power Requirements label from the sheet of labels included with the power supply. (See Figure 10.)

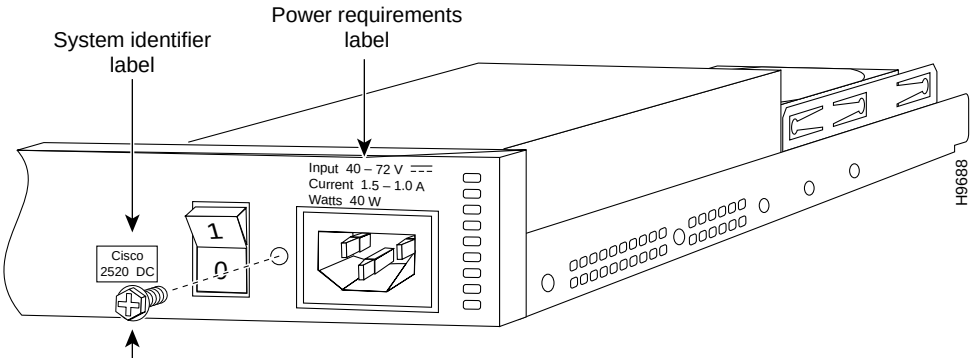
Figure 10 Power Requirements and System Identifier Label Sheet



Note If the power supply in the Cisco 2500 series router is being converted from DC to AC, simply remove the Power Requirements and System Identifier labels from the rear panel of the router chassis.

Step 2 Place the label directly over the silk screened power requirements on the rear panel of the Cisco 2500 series router. (See Figure 11)

Figure 11 Rear Panel Label Locations



Note The System Identifier label shown in Figure 11 shows the Cisco 2520 DC system label for demonstration purposes. Place the appropriate label for your specific model of Cisco 2500 series router in place of this label.

Step 3 Remove the System Identifier label from the sheet of labels included with the power supply. (See Figure 10)

Step 4 Place the System Identifier label directly to the left of the on/off power switch on the rear panel of the Cisco 2500 series router. (See Figure 11)

Obtaining Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section “Service and Support” in the information packet that shipped with your chassis.

Note If you purchased your product from a reseller, you can access Cisco Connection Online (CCO) as a guest. CCO is Cisco Systems’ primary, real-time support channel. Your reseller offers programs that include direct access to CCO’s services.

For service and support for a product purchased directly from Cisco, use CCO.

Cisco Connection Online

CCO is Cisco Systems’ primary, real-time support channel. SMARTnet customers and partners can self-register on CCO to obtain additional information and services.

Note If you purchased your product from a reseller, you can access CCO as a guest. Your reseller offers programs that include direct access to CCO’s services.

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- WWW: http://www-china.cisco.com
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you need technical assistance with a Cisco product that is under warranty or covered by a Cisco maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com.

Please use CCO to obtain general information about Cisco Systems, Cisco products, or upgrades. If CCO is not accessible, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

Use this document with your Cisco 2500 series router Installation and Configuration Guide and the Regulatory Compliance and Safety Information publications.

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